Lesson – 1

Introduction of Computer Fundamentals

Definition of Computer or What is Computer?

A computer is an electronic device which is used for processing data. The data is fed as an input to the computer, stored and then processed as per the instructions provided, so as to generate an output.

Computers are used in many fields such as business, science, engineering, medical, banks, training and education etc.

Development of Computer

The year 1823 could be considered a golden year in the history of computer science. It was in 1823, when an Englishman, **Prof. Charles Babbage,** a professor of mathematics at Cambridge University developed a projected machine which can perform some calculations. **Charles Babbage** is known as the **"Father of Computer".**

Full Form of Computer –
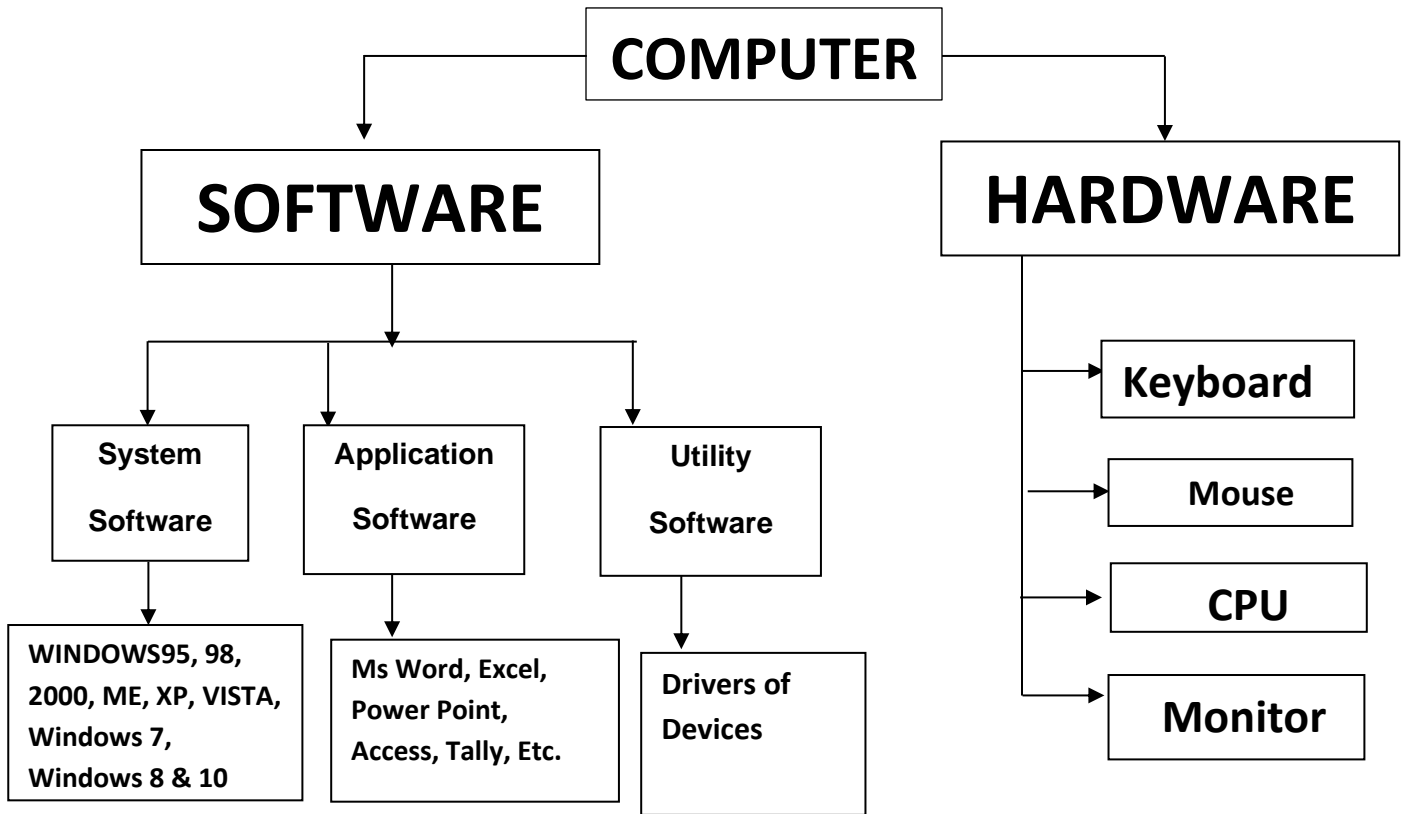
C - Common

O – Operating

M – Machine

P – Purposely

U – Used for

T – Technological and

E – Educational

R – Research

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                        COMPUTER
            ┌───────────────────┴───────────────────┐
            ▼                                         ▼
        SOFTWARE                                  HARDWARE
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System Software	Application Software	Utility Software
WINDOWS95, 98, 2000, ME, XP, VISTA, Windows 7, Windows 8 & 10	Ms Word, Excel, Power Point, Access, Tally, Etc.	Drivers of Devices

Hardware:
- Keyboard
- Mouse
- CPU
- Monitor

SOFTWARE The term software describes the programs (instructions) that we run on our system. Software is classified into:

- **System Software**- Software that controls the hardware components of the computer system. Eg- Operating systems.

- **Application Software**- Software that are used in day-to-day life and are run through system software (operating system). Eg- MS-Office, Banking Software, Adobe, Games, etc.

- **Utility Software-** Software that has its orientation more towards facilitating the use of computer and the various application software. Eg- Calculator, Calendar, etc.

HARDWARE: All the physical components of the computer that you can touch and see, together form computer hardware. These are of different types:
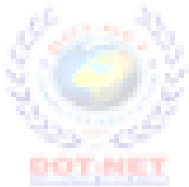
Input Unit	Processing Unit	Output Unit

❖ **Input Devices-** Used for giving input to computer.

- **Keyboard-** Used to enter text information into the computer.

- **Mouse**- It is a pointing device.

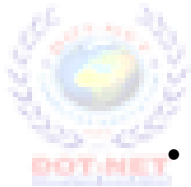- **Scanner**- It is a device that produces a soft copy of the printed page.

- **Digital Camera-** A digital camera stores data digitally and can be transferred on computer.

- **Barcode Reader**- It is a device which is used to read the code from the products which are usually in the form of Bars.

- **Light Pen**- It allows the user to point to displayed objects or draw on the screen in a similar way to a touch screen but with greater positional accuracy.

- **MICR**- **Magnetic Ink Character Recognition** is a character recognition technology used primarily by the banking industry to facilitate the processing and clearance of cheques and other documents. The MICR encoding, called the MICR line, is located at the bottom of a cheque or other voucher and typically includes the document type indicator, bank code, bank account number, cheque number and the amount, plus some control indicator.
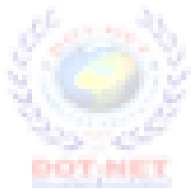
- **Joysticks-** An input device that looks similar to a control device you would find on an arcade game.

- **Touch Screen-** A screen which gets its input directly by touching it like smartphones, tablets, etc.

❖ **Processing Unit:** The Device used for processing. Eg – **CPU (Central Processing Unit).**

❖ **Output Devices:** The devices which are used to display the data to the user either in the form of hard copy or soft copy are called output devices.

- **VDU (Visual Display Unit)**- It is also called monitor. It is used to get the data in the form of soft copy.

- **Printer-** It produces a hard copy of the page you created on computer.

- **Projector-** The devices which are used to display the data to the user either in the form of hard copy or soft copy are called output devices.

- **Speakers**- They produces sound as output.

- **Microphone**- A microphone can be attached to computer to record sound.

❖ **Storage Devices**: These are used in the computers to store the data.

- Hard Disk

- Floppy Disk

- Magnetic Tapes

- Memory Cards

- CD/ DVD

- Pen Drive

TYPES OF COMPUTER

1. **Super Computers**- Super computers are one of the fastest computers currently available. These are very expensive and are used for special applications. Eg- weather forecasting requires super computer.

2. **Mainframes**- Mainframe is a very large and expensive computer capable of supporting hundreds, or even thousands, of users simultaneously.

3. **Minicomputer**- A minicomputer is a multiprocessing system capable of supporting from up to 200 users simultaneously.

4. **Workstation**- It is a type of computer used for engineering applications (CAD/CAM), desktop publishing, software development, and other types of applications that require a moderate amount of computing power and relatively high quality graphics capabilities.

5. **Personal Computer**- It can be defined as a small, relatively inexpensive computer designed for an individual user. Types of personal computers are-

   a. **Desktop-** A desktop computer is a personal computer placed at a single location for regular use. It fits conveniently in an individual workspace.

   a. **Laptop-** A laptop computer is a portable personal computer light and small enough to sit on a person's lap. A laptop computer can be powered by battery or plugged into the wall. The main utility of a laptop computer is that it allows a person to travel with their computing resource.

b. **Notebook-** A notebook computer is a battery- or AC-powered personal computer generally smaller than a briefcase that can easily be transported and conveniently used in temporary spaces such as on airplanes, in libraries, temporary offices, and at meetings. A notebook computer, sometimes called a laptop computer, typically weighs less than 5 pounds and is 3 inches or less in thickness.

c. **Hand-held computer-** A portable computer that is small enough to be held in one's hand. Although extremely convenient to carry, handheld computers have not replaced notebook computers because of their small keyboards and screens.

d. **Palmtop-** A personal digital assistant (PDA), also known as a Smart Phone, is a mobile device that functions as personal information. A computer that has a small screen and compressed keyboard and is small enough to be held in the hand, often used as a personal organizer.
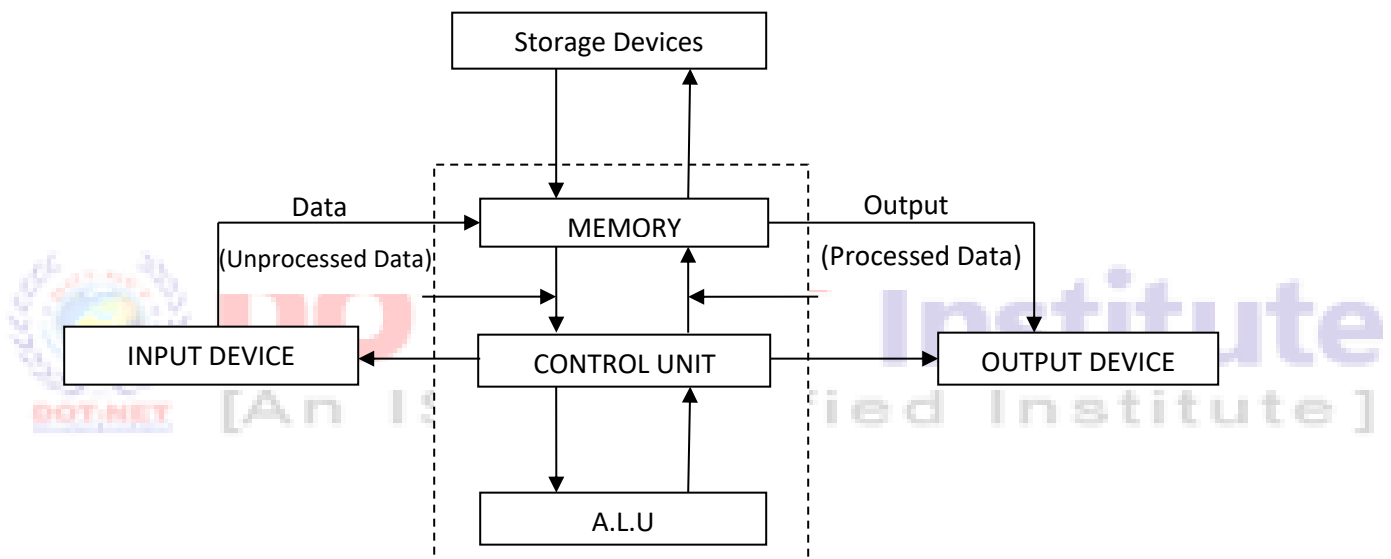
MEMORY OF COMPUTER

The memory is a storage device. There are two types of memory:

1. **Primary Memory:** It resides inside the computer and is also known as main memory. Data is stored in primary memory temporarily while CPU performs the operations. Eg-RAM (Random Access Memory), ROM (Read Only Memory).

2. **Secondary Memory:** It resides outside the computer and normally used for storing data permanently. Eg- Hard Disk, Optical Disk, etc.

ARCHITECTURE OF COMPUTER:-

Architecture of computer relates to the internal processing of computer. Firstly, data is fed in the computer through any input device. The data then goes to memory of computer, then to control unit which basically processes the data. (It changes the data to binary language.) If it is an arithmetic data, it goes to **A.L.U (Arithmetic Logical Unit).** Then data is again transferred to control unit, then memory unit and gives the result as output.

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                    ┌─────────────────┐
                    │ Storage Devices │
                    └─────────────────┘
                             │
        Data          ┌─────────────┐      Output
                      │   MEMORY    │
   (Unprocessed Data) └─────────────┘   (Processed Data)

  ┌──────────────┐    ┌──────────────┐    ┌────────────────┐
  │ INPUT DEVICE │    │ CONTROL UNIT │    │ OUTPUT DEVICE  │
  └──────────────┘    └──────────────┘    └────────────────┘
                      ┌──────────────┐
                      │    A.L.U     │
                      └──────────────┘
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❖ **Memory is measured in the form of bits and bytes.**

1 byte	=	8 bits
1 KB (KiloByte)	=	1024 bytes
1 MB (MegaByte)	=	1024 KB
1 GB (GegaByte)	=	1024 MB
1 TB (TeraByte)	=	1024 GB
1 PB (Petabyte)	=	1024 TB
1 EB (Exabyte)	=	1024 PB
1 ZB (Zettabyte)	=	1024 EB
1 YB (Yottabyte)	=	1024 ZB